Defense-Related Employment of Skilled Labor: An Introduction to LDEPPS

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DEPARTMENT OF DEFENSE

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1. INTRODUCTION

The Department of Defense (DoD) has developed a model for projecting defense purchases and employment—the Defense Employment and Purchases Projection System (*DEPPS*). Employment (i.e., labor) projections are made using a module of *DEPPS* called *LDEPPS*.[1] The objective of *LDEPPS* is to project defense demands for labor over the interval defined by the Future Years Defense Program (FYDP). *LDEPPS* provides a convenient way of summarizing the requirements generated for various occupational classifications of employment in 89 separate industries. The occupational matrix used in *LDEPPS*, comprising 100 occupational categories, provides additional detail about occupations that are heavily employed either directly or indirectly by the Department of Defense.

This booklet was developed as a reference tool for *LDEPPS* users. It begins by explaining—using sample projections—what the *LDEPPS* estimates cover and how they should be interpreted. Subsequent sections describe how the projections are generated and discuss sources of uncertainty in them. A listing of occupations and industries represented in *LDEPPS* can be found in Appendixes A and B, respectively.

2. SAMPLE LDEPPS PROJECTIONS

LDEPPS projections are based on projected occupational employment shares in various industries and on projected changes in labor productivity. The occupational shares describe, for example, what percentage of jobs in the motor vehicle industry are held by mechanical engineers. Labor productivity, for any given industry, is the ratio of gross constant dollar output divided by total hours worked. *LDEPPS* relies on productivity and employment projections generated by the *LIFT* model maintained by Interindustry Forecasting at the University of Maryland (INFORUM).[2] In addition, the *LDEPPS* projections:

- Are based on the President's budget request and so reflect planned expenditures, not actual appropriations or budget authority;
- Reflect DoD expenditures for military programs only. They do not include expenditures for civil programs administered by the Defense Department (such as public works projects of the Army Corps of Engineers) or defense-related expenditures by other federal agencies;
- Reflect planned DoD outlays (i.e., the total amount of funds expended in a given year, as distinct from appropriations, which are typically voted in a single year but are paid out over several years); and

[1] DEPPS includes two other main components: the Industry Defense Employment and Purchases Projection System (*IDEPPS*) and the Regional Defense Employment and Purchases Projection System *(RDEPPS)*. For a description of these systems, see the companion publications *U.S. Defense Purchases: An Introduction to IDEPPS* and *State-Level Defense Purchases: An Introduction to RDEPPS.*

[2] Additional information on the *LIFT* model can be found at http://inforumweb.umd.edu/Lift.html.

- Cover calendar years.

These characteristics must be kept in mind when comparing *LDEPPS* estimates with other published employment statistics.

For each occupation, both total and defense-related employment (i.e, employment generated by DoD direct hire plus direct and indirect defense expenditures) are allocated among 89 industrial sectors, which together account for total gross domestic product (GDP). These 89 sectors are defined as aggregates of four-digit Standard Industrial Classification (SIC) industries. Appendix B identifies the SIC industries encompassed within each of the 89 sectors covered in *LDEPPS*.[3]

Presented in Table 1, as an example, are the *LDEPPS* projections for employment of aeronautical and astronautical engineers during the period 2000-2005. The first six columns of the table provide year-by-year projections; the last column shows the average projected growth rate over the forecast period.

Table 1. Top Five Industries Employing Aeronautical and Astronautical Engineers, 2000-2005
(Thousands of workers, ranked by level)

	2000	*2001*	*2002*	*2003*	*2004*	*2005*	*2000-05*
Defense-Related Employment							
Federal government, defense (Ind 100)	9.1	8.8	8.7	8.6	8.5	8.6	-1.10
Aerospace (Ind 51)	5.1	5.3	5.4	5.6	5.6	5.6	2.05
Search and navigation equipment (Ind 54)	0.2	0.2	0.2	0.2	0.2	0.2	-2.96
Communication equipment (Ind 47)	0.2	0.2	0.2	0.2	0.2	0.2	-1.42
Professional services (Ind 77)	0.1	0.1	0.1	0.1	0.1	0.1	-4.47
Total U.S. Employment							
Aerospace (Ind 51)	26.8	27.9	28.9	29.7	31.1	32.6	3.92
Federal government, defense (Ind 100)	9.1	8.8	8.7	8.6	8.5	8.6	-1.10
Federal government, nondefense (Ind 101)	4.6	4.7	4.7	4.8	4.9	5.0	1.57
Other business services (Ind 80)	2.8	2.8	2.8	2.8	2.8	2.8	-0.03
Other transportation equipment (Ind 53)	2.2	2.3	2.4	2.4	2.5	2.6	2.92

[3] For definitions of the SIC industries, see Office of Management and Budget, *Standard Industrial Classification Manual*, 1987 (Order No. PB 87-100012, National Technical Information Service, Springfield, Virginia 22161). The industries covered in *LDEPPS* are for the most part the same as those used in *RDEPPS* and the INFORUM *LIFT* model. The differences are:

83. Public and private hospitals have been combined
87. Public and private education have been combined
98. Private household industry, primarily domestic servants
99. Post office, including federal enterprises
100. Federal government, defense
101. Federal government, nondefense
102. State and local government, except hospitals and education.

The top half of Table 1 addresses what is called "defense-related employment." Defense-related employment is defined as the sum of the persons in an occupation who:

- Are employed by DoD;
- Are employed by firms directly engaged in defense production; or
- Are employed by firms that are indirectly engaged in defense production (i.e., engaged in the production of inputs to goods bought by DoD, in the production of inputs to those inputs, and so on through the chain of production).

LDEPPS estimates consider only individuals employed full or part time in an occupation (that is, they do not include "full-time equivalents"). Thus, a retail clerk working for a large department store twenty hours a week is counted as one job under *LDEPPS*. A full-time equivalent measure would count such a position as roughly half a job.

The lower half of Table 1 gives projections of total (i.e., both defense and nondefense-related) employment levels for aeronautical and astronautical engineers. Nondefense employment (not shown separately) is the difference between total and defense-related employment in a given industry.

The format of the projections is identical for all 100 occupations addressed in *LDEPPS*. The "aeronautical and astronautical engineers" occupational category affords a convenient example because employment is concentrated in comparatively few industries. This category is, however, unrepresentative of other occupational categories in two respects. First, employment in most occupational categories is much more widely distributed among industries than is the case with the aeronautical and astronautical engineers category. Second, defense-related employment accounts for more than one-quarter (about 27 percent) of total employment of aeronautical and astronautical engineers. (This is not surprising, as direct and indirect defense purchases constitute over half of the output of domestic aerospace industries.) For most occupations, including other engineering specialties, the defense-related share of total employment is much smaller.

Table 2 lists the 10 occupations projected to be most heavily involved in defense-related work in 2001. The table gives, for each occupation, an estimate of the total number of people working in that field, along with the share of the total projected to hold defense-related jobs. For purposes of comparison, aggregate figures for the 100 occupations considered in *LDEPPS* also are provided. The top line of the table shows that, across the 100 *LDEPPS* occupations, only 1.9 percent of all employees are expected to hold defense-related jobs in 2001. For the 10 occupations listed in the table, however, the shares are much higher, ranging from 11 percent for mathematicians to almost 60 percent for shipfitters.

Table 2. Share of Defense-Related Employment by Occupation, 2001 (Thousands of workers)

	Total	*Defense Related*	*Percentage Share*
TOTAL EMPLOYMENT	**149,322**	**2,864**	**1.92**
Shipfitters (Occ 74)	12	7	59.67
Aeronautical and astronautical engineers (Occ 3)	59	16	26.71
Aircraft mechanics and engine specialists (Occ 60)	174	36	20.44
Aircraft assemblers, precision (Occ 64)	21	4	18.73
All other physical scientists (Occ 19)	32	6	17.81
Electrical and electronics engineers (Occ 6)	399	68	16.94
Operations research analysts (Occ 15)	57	9	15.78
Mechanical engineers (Occ 8)	230	33	14.29
Civil engineers, including traffic engineers (Occ 5)	170	22	12.91
Mathematicians and all other mathematical scientists (Occ 14)	35	4	10.63

Table 3 breaks out the data from Table 2, showing, for each of the 10 leading defense-related occupations, the three industries in which jobs are projected to be concentrated in 2001. The "Federal government, defense" entries pertain solely to civilians employed by the Department of Defense. Note that for many of these occupations, DoD is the largest or one of the largest employers.

Table 3. Industrial Distribution of Top 10 Defense-Related Occupations, 2001 (Thousands of workers)

Shipfitters (Occ 74)		**Electrical and electronics engineers (Occ 6)**	
Federal government, defense (Ind 100)	3.326	Federal government, defense (Ind 100)	45.929
Ships, boats (Ind 52)	3.113	Electronic components (Ind 48)	2.702
Aerospace (Ind 51)	0.125	Agriculture, construction, mining, and oil field machinery (Ind 36)	2.693
Aeronautical and astronautical engineers (Occ 3)		**Operations research analysts (Occ 15)**	
Federal government, defense (Ind 100)	8.826	Federal government, defense (Ind 100)	6.454
Aerospace (Ind 51)	5.278	Aerospace (Ind 51)	0.532
Search and navigation equipment (Ind 54)	0.171	Professional services (Ind 77)	0.438
Aircraft mechanics and engine specialists (Occ 60)		**Mechanical engineers (Occ 8)**	
Aerospace (Ind 51)	3.995	Federal government, defense (Ind 100)	21.957
Federal government, defense (Ind 100)	0.009	Agriculture, construction, mining, and oil field machinery (Ind 36)	11.001
Other transportation equipment (Ind 53)	0.001	Aerospace (Ind 51)	3.734
Aircraft assemblers, precision (Occ 64)		**Civil engineers, including traffic engineers (Occ 5)**	
Aerospace (Ind 51)	3.995	Federal government, defense (Ind 100)	18.656
Federal government, defense (Ind 100)	0.009	Construction (Ind 7)	0.755
Other transportation equipment (Ind 53)	0.001	Aerospace (Ind 51)	0.324
All other physical scientists (Occ 19)		**Mathematicians and all other mathematical scientists (Occ 14)**	
Federal government, defense (Ind 100)	4.941	Federal government, defense (Ind 100)	3.018
Professional services (Ind 77)	0.042	Aerospace (Ind 51)	0.143
Other business services (Ind 80)	0.028	Finance and insurance (Ind 72)	0.063

Table 4 focuses on the DoD work force, identifying the 10 occupations projected to supply the largest number of civilian employees to the Defense Department during 2000-2005. Management support employees head the list, with secretaries and computer system analysts, engineers, and scientists also accounting for a significant share of DoD personnel.

Table 4. Top 10 Occupations, DoD Direct Hire, 2000-2005
(Thousands of workers, ranked by level)

	2000	*2001*	*2002*	*2003*	*2004*	*2005*
Management support occupations (Occ 2)	93.6	90.9	89.2	88.2	88.1	88.6
Secretaries (Occ 45)	90.5	87.8	86.1	85.2	85.1	85.6
Computer systems analysts, engineers, and scientists (Occ 13)	65.5	63.6	62.4	61.7	61.6	62.0
Electrical and electronics engineers (Occ 6)	47.3	45.9	45.0	44.5	44.5	44.8
Automotive, truck & other mechanics (Occ 61)	32.5	31.5	30.9	30.6	30.5	30.7
Protective service occupations (Occ 52)	30.1	29.2	28.7	28.3	28.3	28.5
Material recording, scheduling, dispatching, and distributing occupations (Occ 43)	26.9	26.1	25.6	25.3	25.3	25.5
Aircraft mechanics and engine specialists (Occ 60)	25.6	24.9	24.4	24.1	24.1	24.3
Mechanical engineers (Occ 8)	22.6	22.0	21.5	21.3	21.3	21.4
Other clerical and administrative support workers (Occ 46)	20.9	20.3	19.9	19.6	19.6	19.7

Table 5 shows the 10 occupations projected to lead in defense-related employment during 2000-2005. This includes not only the civilian DoD work force, but also private-sector personnel engaged, either directly or indirectly, in the production of defense goods and services. Again, management support personnel, secretaries, and computer system analysts, engineers, and scientists account for the largest numbers of employees.

Table 5. Top 10 Occupations, Defense-Related Employment, 2000-2005
(Thousands of workers, ranked by level)

	2000	*2001*	*2002*	*2003*	*2004*	*2005*	*2000-05*
Management support occupations (Occ 2)	188.2	185.0	183.9	182.7	181.2	180.0	-0.90
Managerial and administrative occupations (Occ 1)	168.6	161.7	159.9	157.3	156.4	155.1	-1.67
Secretaries (Occ 45)	158.3	156.8	156.2	155.9	155.6	155.0	-0.42
Other clerical and administrative support workers (Occ 46)	155.9	150.1	148.8	147.1	146.3	145.4	-1.39
Computer systems analysts, engineers, and scientists (Occ 13)	142.4	135.8	131.0	126.7	122.3	118.0	-3.76
Marketing and sales occupations (Occ 39)	141.9	134.6	134.0	131.8	131.0	130.4	-1.69
Construction trades (Occ 56)	130.0	128.7	124.3	122.9	124.1	123.4	-1.04
Helpers, laborers, and material movers, hand (Occ 100)	117.1	112.6	110.6	108.8	108.4	107.4	-1.73
Material recording, scheduling, dispatching, and distributing occupations (Occ 43)	82.0	79.7	80.1	79.6	79.6	79.6	-0.58
Cleaning and building service occupations, except private household (Occ 47)	76.6	75.1	75.0	73.6	75.2	75.4	-0.33

3. HOW THE PROJECTIONS ARE MADE

The *LDEPPS* projections are computed by:

- Projecting employment in each of 89 sectors; and
- Estimating (sector by sector) employment in each of 100 occupational categories.

The first set of calculations relies on employment projections generated by the INFORUM *LIFT* model. The second set relies heavily on projections and data published by the Bureau of Labor Statistics (BLS) within the U.S. Department of Labor.

Total Employment by SIC Sector. *LDEPPS* takes as its point of departure *IDEPPS* projections of purchases from each of 320 SIC industries. For the base year (currently 2001), the coefficients in *LDEPPS* are ratios of employment to industry output. The projected values of the labor input coefficients reflect expected trends in labor productivity. (Note that employment per dollar of output is the reciprocal of average labor productivity.)

Employment by Occupation. The 100 occupational categories in *LDEPPS* are aggregations of more detailed categories established by BLS. Definitions of the occupational categories used by BLS change somewhat from one survey to the next. BLS maintains detailed definitions of the categories used in each survey.[4]

The BLS National Industry-Occupational Matrix gives, for each industry, the shares of employment in that industry accounted for by various occupations.[5] This matrix, which covers wage and salary workers, is prepared biannually by BLS. For all nonagricultural industries, the matrix uses data from the biannual Occupational Employment Statistics (OES) survey, which covers about one-third of the economy. Distributions of occupational categories for agricultural workers are derived from the Current Population Survey (CPS). This survey queries individuals rather than employers (and so is believed to be less accurate than the OES).

BLS generates projections of occupational distributions by industry by analyzing the factors expected to influence trends in the staffing patterns of industries as technologies change. Currently, the BLS matrix provides projections for 2008.

LDEPPS uses (for each year of the forecast horizon) the appropriate linear interpolation between the National Industry-Occupational Matrix for the most recent year and the BLS table for 2008. For each industry, the estimated shares of employment accounted for by the different occupational categories are multiplied by total projected employment in that industry. Total

[4] The latest projections using the National Industry-Occupational Matrix are described in "Occupational Employment Projections to 2008," by Douglas Braddock, in *Monthly Labor Review* (November 1999), pp. 51-77. This article may be downloaded from the BLS web site at http://www.bls.gov/opub/mlr/1999/11/art5full.pdf. The occupational employment matrices may be obtained from http://www.bls.gov/asp/oep/nioem/empiohm.asp.

[5] See "National Industry-Occupational Matrix," Chapter 3 of U.S. Department of Labor, Bureau of Labor Statistics, *BLS Handbook of Methods* (April 1997), http://www.bls.gov/opub/hom/homhome.htm.

projected employment for an occupation is the sum of projected employment in that occupation across industries.

DoD direct employment is handled somewhat differently. The total number of civilian employees in the Department of Defense is derived from the FYDP. Distributions of employees into occupational categories are based on special tabulations developed by BLS from Office of Personnel Management reports. It should be noted that *LDEPPS* counts teachers and other educational workers employed by state and local governments within Sector 87 (Private and Public Education, and Non-Profit Organizations) rather than in Sector 102 (State and Local Government). Also, state and local hospital workers are combined with private hospital workers in Sector 83 (Private and Public Hospitals). Sector 102 excludes hospitals and education. The reason for this is that no separate occupational employment information is available for these sectors.

4. SOURCES OF UNCERTAINTY

The main source of uncertainty in *LDEPPS* projections lies in the estimates of purchases upon which the projections rest. It is important in this regard to distinguish between the projections of defense-related and total employment. *LDEPPS* projections of defense-related employment are based on planned defense spending, not on the defense budgets ultimately enacted by Congress. Actual employment will, of course, differ from projected levels to the extent that the actual level and composition of defense spending differ from those in DoD budget requests. Uncertainties in the estimates of nondefense employment derive from the projections of nondefense production by sector (i.e., the difference between total domestic production and defense-related production).

In addition to estimates of defense and nondefense purchases, *LDEPPS* projections rest on estimates of changes in labor productivity obtained from INFORUM's *LIFT* model. If labor productivity in a certain industry were to increase faster than projected, employment would be lower in that industry than suggested by the *LDEPPS* projection. Conversely, if productivity were to rise more slowly than projected, employment would be higher.

A source of uncertainty for the projections of occupational employment is the National Industry-Occupational Matrix. As new data become available and new trends become apparent, BLS revises the matrix. The projected occupational trends, however, are based upon a "best guess" of the distribution of occupations across industries.

Appendix A. Occupational Labor Categories

occ#	LDEPPS Occupational Category	BLS Occupational Code
1	Managerial and administrative occupations	110000003
2	Management support occupations	210000024
3	Aeronautical and astronautical engineers	221020058
4	Chemical engineers	221140059
5	Civil engineers, including traffic engineers	221210060
6	Electrical and electronics engineers	221260061
7	Industrial engineers, except safety engineers	221280062
8	Mechanical engineers	221350064
9	Metallurgists and metallurgical, ceramic, and materials engineers	221050063
10	All other engineers	221100057 other
11	Architects and surveyors	223010075
12	Life scientists	243000079
13	Computer systems analysts, engineers, and scientists	251970089
14	Mathematicians and all other mathematical scientists	253010087 other
15	Operations research analysts	253020100
16	Chemists	241080102
17	Geologists, geophysicists, and oceanographers	241110104
18	Physicists and astronomers	241020105
19	All other physical scientists	241000101 other
20	Social scientists	271000113
21	Social, recreational, and religious workers	272000120
22	Lawyers and judicial workers	281000127
23	Teachers, librarians, and counselors	310000132
24	Dentists	321050192
25	Physicians	321020194
26	Veterinarians and veterinary inspectors	321140196
27	Other health-diagnosing occupations	321130191 other
28	Registered nurses	325020201
29	All other health-assessment occupations	325010197 other
30	Writers, artists, and entertainers	340400213
31	All other professional workers	399970238
32	Health technicians and technologists	239010243
33	Engineering technicians	351010267

Appendix A. Occupational Labor Categories

occ#	LDEPPS Occupational Category	BLS Occupational Code
34	Drafters	225120275
35	Science and mathematics technicians	245010278
36	Computer programmers	251060291
37	Programmers, numerical, tool, and process control	251110760
38	All other technicians	350000242
39	Marketing and sales occupations	400000308
40	Communications equipment operators	571000341
41	Computer operators and peripheral equipment operators	561000349
42	Information clerks	560110351
43	Material recording, scheduling, dispatching, and distributing occupations	580010366
44	Records-processing occupations	532000383
45	Secretaries	552000397
46	Other clerical and administrative support workers	599000404
47	Cleaning and building service occupations, except private household	670100438
48	Food preparation and service occupations	650100446
49	Health service occupations	660010468
50	Personal service occupations	660990478
51	Private household workers	620000493
52	Protective service occupations	620310499
53	All other service workers	699980527
54	Agriculture, forestry, fishing and related occupations	700100535
55	Blue-collar-worker supervisors	810000580
56	Construction trades	870010588
57	Extractive and related workers, including blasters	879000639
58	Communications equipment mechanics, installers, and repairers	855010664
59	Electrical and electronic equipment mechanics, installers, and repairers	857010660 other
60	Aircraft mechanics and engine specialists	853200692
61	Automotive, truck, and other mechanics	853000691 other
62	Mobile heavy equipment mechanics	853140699
63	Other mechanics, installers, and repairers	859000703
64	Aircraft assemblers, precision	931000732
65	Electrical and electronic equipment assemblers, precision	931140734
66	Electromechanical equipment assemblers, precision	931110735
67	Fitters, structural metal, precision	931080736

Appendix A. Occupational Labor Categories

occ#	LDEPPS Occupational Category	BLS Occupational Code
68	Machine builders and other precision machine assemblers	931050737
69	All other precision assemblers	931960738
70	Inspectors, testers, and graders, precision	830000749
71	Boilermakers	891350589
72	Machinists	891080759
73	Sheet metal workers and duct installers	878230625
74	Shipfitters	891210761
75	Tool and die makers	891020762
76	All other precision metal workers	891000755 other
77	Printing workers, precision	897000771
78	Other precision workers	897160782, 893000796, 899000805
79	Plant and system occupations	950000817
80	Numerical control machine tool operators and tenders, metal and plastic	915020837
81	Combination machine tool setters, set-up operators, operators, and tenders	915100838
82	Machine tool cut and form setters, operators, and tenders, metal and plastic	912000841
83	Metal fabricating machine setters, operators, and related workers	917000856
84	Metal and plastic processing machine setters, operators, and related workers	919000864
85	Other machine setters, set-up operators, operators, and tenders	925000884, 917010903, 923000913, 929010921
86	Electrical and electronic assemblers	939050963
87	Grinders and polishers, hand	939530964
88	Machine assemblers	939020965
89	Meat, poultry, and fish cutters and trimmers, hand	939380966
90	Metal pourers and casters, basic shapes	930140971
91	Painting, coating, and decorating workers, hand	939470967
92	Solderers, brazers, welders, and cutters	939170970, 939140971
93	All other assemblers and fabricators	939350960, 939080961
94	All other hand workers	939260962, 939210968, 939230969
95	Motor vehicle operators	971000983
96	Rail transportation workers	973000994
97	Water transportation and related workers	975011003
98	Material moving equipment operators	979001012
99	All other transportation and related workers	979981032
100	Helpers, laborers, and material movers, hand	980001037

Appendix B. Industry Categories

#	Industry Title	IDEPPS Sectors	SIC
1	Agriculture, forestry, and fishery	1-10	01, 02, 07, 08, 09, exc. 074
2	Metal mining	11-13	10
3	Coal mining	14	12
5	Crude petroleum and natural gas	15, 16	1312, 1311, 132, 138
6	Non-metallic mining	17, 18	14
7	Construction	19, 20	
9	Meat products	27, 28	201
10	Dairy products	29-30	202
11	Canned and frozen foods	32	203
12	Bakery and cereal mill products	33-37	204, 205
13	Alcoholic beverages	40-42	2082, 2083, 2084, 2085
14	Other food products	31, 38, 39, 43-48	206, 207, 2086, 2087, 209
15	Tobacco products	49-52	21
16	Textiles and knitting	53-58	22
17	Apparel, household textiles	59-61	23
18	Paper	77-85	26
19	Printing and publishing	86-94	27
20	Argicultural fertilizers and chemicals	98	287
21	Plastics and synthetics	102-105	282
22	Drugs	106	283
23	Other chemicals	95-97, 99-101, 107-109	281, 284, 285, 286, 289
24	Petroleum refining	110, 112	2911, 2917, 2992, 2999
25	Fuel oil	111	2915
26	Rubber products	113-117	301, 302, 305, 306
27	Plastic products	118	308
28	Shoes and leather	119-122	31
29	Lumber	62-71, 243	24
30	Furniture	72-76	25
31	Stone, clay, glass	123-132	32
32	Primary ferrous metals	133-136	331, 332, 339, 3462
33	Primary nonferrous metals	137-145	333, 334, 335, 336, 3463
34	Metal products	22, 24-26, 146-164	34, exc. 3462, 3463
35	Engines and turbines	165-166	351
36	Agricultural, construction, mining, and oil field machinery	167-174	352, 353
37	Metalworking machinery	175-180, 190, 212	354
38	Special industry machinery	181-186	355
39	General and miscellaneous industrial machinery	187-189, 191-197	356, 359
40	Computers	198, 199, 201	3571, 3572, 3575, 3577
41	Office equipment	200	3578, 3579
42	Service industry machinery	202-206	358
43	Electrical industrial appliances and distribution equipment	208-211, 213	361, 362
44	Household appliances	214215	363
45	Electrical lighting and wiring equipment	216, 224, 225, 228-230	364, 369
46	TVs, VCRs, radios, and phonographs	217, 218	365

Appendix B. Industry Categories

#	Industry Title	IDEPPS Sectors	SIC
47	Communication equipment	219-220	366
48	Electronic components	221-223	367
49	Motor vehicles	231-233, 244	3711, 3713, 3715, 3716
50	Motor vehicle parts	234	3714
51	Aerospace	21, 235-237	372, 376
52	Ships and boats	238,239	373
53	Other transportation equipment	23, 240-242, 245	374, 375, 379
54	Search and navigation equipment	246	381
55	Medical instruments and supplies	226-227, 249-251	384
56	Opthalmic goods	254	385
57	Other instruments	207, 247, 248, 252, 253, 255	382, 386, 387
58	Miscellaneous manufacturing	256-262	39
59	Railroads	263	40, 474, pt. 4789
60	Trucking, highway passenger transit	264, 265	41, 42, pt. 4789
61	Water transport	266	44
62	Air transport	267	45
63	Pipeline	268	46
64	Transportation services	269	471, 472, 478
65	Communications services	270, 271	48
66	Electric utilities	272	491, pt. 493
67	Gas utilities	273	492, pt. 493
68	Water and sanitation	274	pt. 493, 494, 495, 496, 497
69	Wholesale trade	275	50, 51
70	Retail trade	276	52, 53, 54, 55, 56, 57, 59
71	Eating and drinking places	277	58
72	Finance and insurance	278-282	60, 61, 62, 63, 64, 67, exc. 6732
73	Real estate	284, 285	65
74	Owner-occupied housing	283	N/A
75	Hotels and lodging	286	70
76	Repairs except autos, personal services	287	72, 76, exc. 769
77	Professional services	290, 294-296	81, 872, 874, 873, 89
78	Computer and data processing	289	737
79	Advertising	292	731
80	Other business services	288, 291, 293	734, 735, 736, 739, 769
81	Automobile repairs	297, 298	75
82	Movies and amusements	299-301	78, 79
83	Private and public hospitals	302	806
84	Physicians	303	801, 803
85	Other medical services	304	0740, 802, 8041, 807, 808, 809
86	Nursing homes	305	805
87	Private and public education, non-profit organizations	306-309	82, 83, 84, 86, 6732
98	Private household	314	
99	Post office, including federal enterprise	310, 311	
100	Federal government, defense	pt. 317	
101	Federal government, nondefense	pt. 317	
102	State and local government, except hospitals and education	pt. 317	